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Log Cabin Identification

Jim Rock

SD
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.R5

LOG CABIN IDENTIFICATION

Jim Rock
Klamath National Forest
Region 5
USDA

Property of
National Forest Service
[illegible] Prospect Rd
[illegible] CO 80526

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INTRODUCTION

Round log construction was introduced into the Americas by Swedes and Germans (Jordan 1978:33; Weslager 1955:263). In 1638 Swedes settled on the Delaware River and built cabins using horizontal log construction techniques. Log houses were also being built in New Sweden, Maryland by 1669 and in North Carolina by 1680 (Glassie 1963:5; Kniffen and Glassie 1966:58; Weslager 1969:148). Eighteenth century Germans in Pennsylvania used horizontal log construction techniques in house building that are common in Bohemia, Moravia, and Silesia today (Glassie 1963:5; Kniffen and Glassie 1966: 58-59).

In Europe, round log construction was the earliest form of horizontal log construction, but was quickly refined to make better and longer lasting structures. Early Roman invaders of Germany reported seeing log structures made with square-hewn logs (Bramwell 1976:60). Hewn logs, squared logs, and planked logs appear to have been refinements that developed from round log construction and quickly replaced round logs in the majority of cases in Europe and the America.

Another method of construction, known as half timbering, was less common. It utilized heavy framing which was usually horizontal, but was sometimes vertical or diagonal. Spaces of up to two feet between the framing were filled with various materials (Kniffen and Glassie 1966:41). This style of timbering was earlier used in Britain, France, Germany, and Sweden. And was intorduced in New England by English settlers. This style of log construction spread throughout Virginia and German Pennsylvania and was introduced by the Pennsylvania Dutch into Ohio, Wisconsin, Missouri, and Texas during the 19th century (Kniffen and Glassie 1966:41, 43).

Half round or semilunate horizontal log construction was most often used in the Deep South, but was supplanted by round log construction in Texas during the Great Depression (Jordan 1978:35). I assume this is true in the majority of areas where log construction was once again employed after it had fallen into disuse.

Perhaps the most easily recognizeable attributes of log cabins derive from various methods of corner construction. In North America (from midwest to northeast and on into the southeast), the most common styles are the saddle notch, square notch, V notch, and the half dovetail notch (Kniffen and Glassie 1966:64; Jordan 1978:49).

Other attributes derive from various methods and materials used in chinking the logs. Many types of materials may be used, such as mud, paper, cement, or wood. In the Deep South the most common chinking style is that of nailing "sealing boards" on the exterior of the structure (Jordan 1978:43).

Roof styles vary with national origin, but appear to have blended in America over the years as contact between groups became more frequent. The gable style of roof is known early in Scandanavia, and was introduced by Swedes and Finns in Delaware. Roofs without ridgepoles may have their ancestors in Germany or England. The ridgepole and rafter roof style is thought to be a British trait, while the Anglo western roof style may be one that evolved through trial and error in Rocky Mountain areas of the United States (Jordan 1978:84).

LOG SHAPES AND PREPARATION

The oldest and simplest form of log preparation is to leave the logs round. The bark may be left on or peeled off the log. There is an advantage to peeling off the bark in that less moisture and fewer bugs get in to destroy the log (Jordan 1978:33).

Rough hewn logs are logs that are flattened only slightly on two opposing sides. This method provides a smooth surface for the interior and exterior of the structure and can create a slightly larger interior. The bark serves as chinking between logs if it is left in place but it may be removed. Hewing of logs is technologically more advanced, requires more skilled preparation, and provides better looking and longer lasting buildings. By removing some or all of the bark and sapwood, the more durable "heartwood" is left (Conner 1949:111; Jordan 1978:35).

LOG CABINS: HORIZONTAL LOG CONSTRUCTION

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(Illustrations by Chris Colvard)

Jim Rock

Klamath National Forest

October 1979

Two-sided hewing is called "planking." This differs from rough hewing in that the log is shaped to about 5" x 7" in dimension and the bark usually is retained on the top and bottom of the log (Jordan 1978:35-56). Furthermore rough hewing usually removes only a small amount of material from each side of the log and can be done after the logs are in place, while planking must be done prior to placement (Jordan 1978:36).

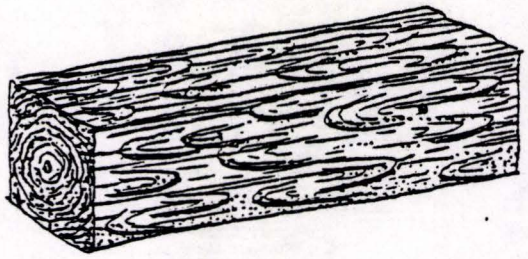
Square hewing or four-sided hewing is often found in top and bottom logs of structures--the sill and the plate. Square-sided hewn logs are prepared before they are placed in the structure (Jordan 1978:36). Square-hewn logs are usually made with a foot adze or broad axe, though occasionally a whip saw, or today a chain saw, is used to square timbers. (Jordan 1978:35).

Rounded logs may be cut in half or split lengthwise to produce half-round or semilunate logs. These half logs can in turn be hewn to make them resemble planks. The flat side, split side, or cut side is placed toward the interior of the structure to provide more space and a smoother interior surface (Jordan 1978:36).

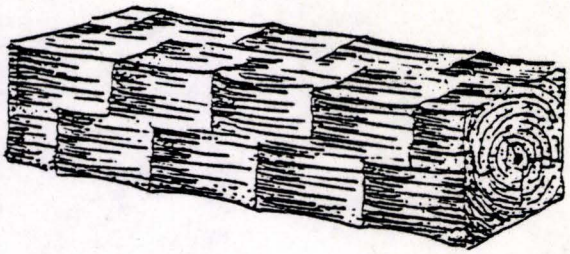
Preparation of logs utilizes several basic tools that leave their impression on the logs.

Logs are often shaped with a broad axe. This method of preparation requires scoring the log with the axe and then using a chalk line or string to mark the line one wishes to follow. The broad axe is then used to shave off the desired amount of material to leave a relatively smooth surface. Broad axes are either right or left handled, and all work must be set up for a consistent approach. Adzing--working with a foot adze--leaves a pattern of small indentations or scoops in the surface of the log. Jordan states, "Most craftsmen use a foot adze, a hoelike cutting instrument with a curved blade and long handle. Grasping the handle of the foot adze with the right hand about one-third of the way up from the blade, the carpenter rests the bottom of his right forearm on his right thigh. His left hand holds the handle near the butt end. Straddling the log, he makes short chopping strokes parallel to the surface of the log, chipping off the rounded bark surface in small chunks between each score. The craftsman moves backward as his work progresses (Jordan 1978:35; also see Sloane 1964:14-17, 26-27)."

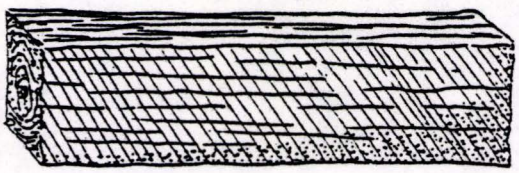
Two types of saws are commonly used in shaping logs for cabins, the whip saw, and the chain saw. The whip saw leaves single distinctive straight lines crossing the log where its teeth cut in. The chain saw leaves deeper score marks, less regular in angle, and often shows a turn or circle effect where the saw blade ended. It is also true of chain saws that if the dogs are set, a fan-shaped pattern of cutting will be present. Milled lumber has a much more uniform appearance and shows less teeth marks. If a circle saw is used, a circular arc may be present.



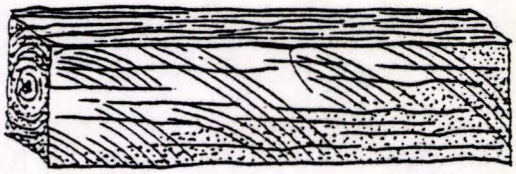
adzed beam



broad axed

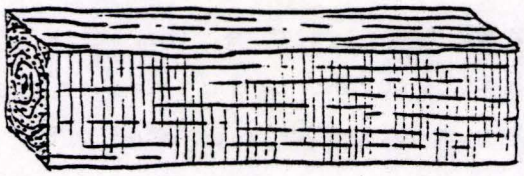


whip saw



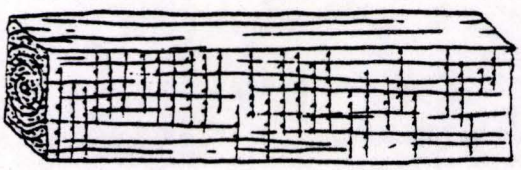
chain saw

MILLED LUMBER

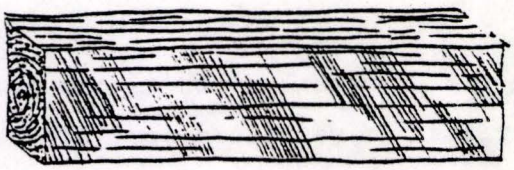


milled st saw

milled circle saw



marks of an up &
down saw millsaw



pit saw

CORNER NOTCHING STYLES

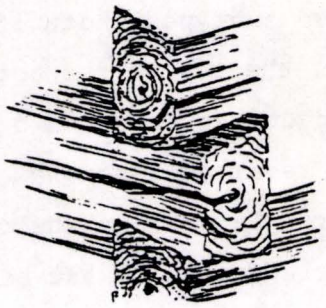
full-dovetail

full-dovetail notch

Full Dovetail Notch - This corner notch is the most difficult type to make of those used in the Americas. It locks the logs together in both directions, forms a box corner, and slopes downward on every face. It is made by cutting slants or "splays" in different directions on the top and bottom of the log. This construction is shaped in such a manner that it will drain water to the exterior of the structure. The self-draining feature allows cabins made with this corner to last longer than many others. In the majority of cases, this corner will be used with squared timbers, but occasionally it has been used with round logs (Glassie 1963:10; Jordan 1978:48; Kniffen 1969:3; Kniffen and Glassie 1966:54, 56; Weslager 1969:338-339; and Wigginton 1972:64-69).

The full dovetail notch is the most complicated notch used in the Americas. It was introduced into the Middle Atlantic colonies by Swedish and German immigrants. It also is found in New Jersey, the Delaware Valley, eastern Pennsylvania, the great valley of the Appalachians, and as far south as northwestern Virginia (Glassie 1963:10; Jordan 1978:49; and Weslager 1969:152-153).

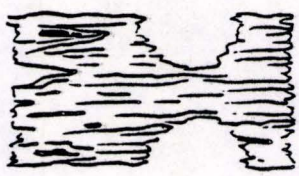
half-dovetail



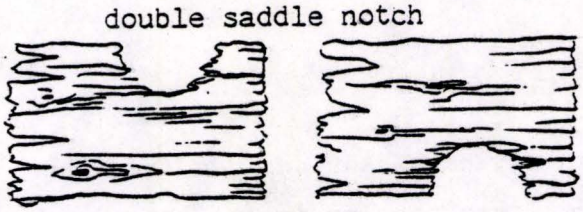
half-dovetail notch

Half-Dovetail Notch - This notch is often called a "mitre" dovetail notch. The half-dovetail notch varies from the full dovetail notch in that it has a splay or slant only on top of the log where it slopes upward. The bottom of the notch is flat rather than sloping and is called the tongue of the log. Even though this corner notch is not as strong as the full dovetail, it still forms a joint that is tightly locked and drains water outside the building. The half-dovetail is more easily made than the full dovetail, since it can be partly sawed rather than completely chipped out. The half-dovetail is usually found on hewn or squared logs (Bramwell 1976:61; Jordan 1978:54; Kniffen 1969:3; Kniffen and Glassie 1966:48, 56: and Weslager 1969:338-339).

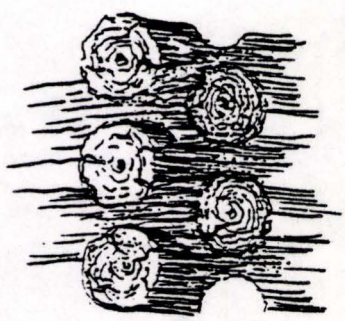
Half dovetailing developed from full dovetailing, and is found most often in West Virginia, Kentucky, Virginia to the Cumberland, and even Ohio. It is also known in north Texas as the "Missouri notch." It originated in Czechoslovakia (Glassie 1963:10; Jordan 1978:54; Kniffen and Glassie 1966:63).



double saddle notch



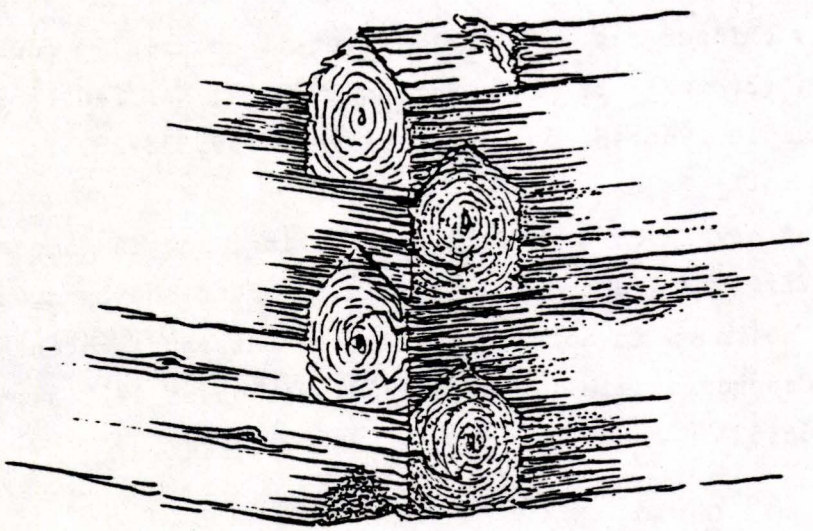
single sadle notch



saddle notch

Saddle Notch or Cradle Notch - This notch is perhaps the oldest type of notch. It has two subtypes, both of which are half saddle notches, with notches either on the top or the bottom of the log. The double saddle notch has scooped out depressions on both the top and the bottom of each log. This joint requires that the ends of the logs be left projecting beyond the corner. In America the projection is usually only a few inches. The single saddle on the bottom of the log drains water better than either the double or top saddle notch style (Bramwell 1976:61; Jordan 1978:58; Kniffen 1969:1; Kniffen and Glassie 1966:54; Weslager 1969:336-338; and Wigginton 1972:71-75).

Like the dovetail notch, the saddle notch was brought into America by the Swedes and Germans. It was most commonly used by them in barn and outbuilding construction. In the 20th century it has become the dominant building form in east Texas and the Deep South (Jordan 1978:5; Kniffen 1969:1; Kniffen and Glassie 1966:63).

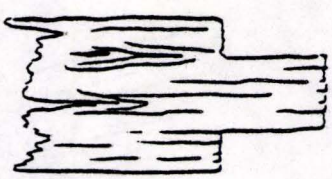


"V" notch

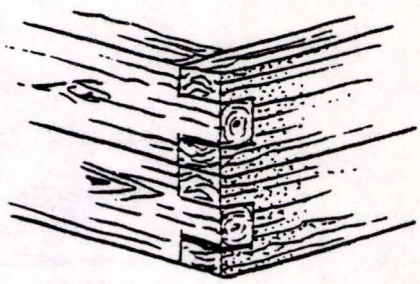
V Notch or Sharp Notch - This notch may have been derived from the bottom half saddle notch. It is cut into the log in the shape of a

sharp V so that the tapered, chamfered head of the lower log fits into the notch of the log above it. It is most often used on round logs, but can be found on shaped or hewn logs. If the log is hewn, this notch is shaped like the gable end of a house, and for this reason, it may be called a "roof topping" notch. The log end on the tongue, or crown, appears pear-shaped. This notch, though not as strong as a dovetail or saddle, sheds water rather well and usually is cut close to the end of the log to form a square corner (Jordan 1968:65; Kniffen 1969:3; Kniffen and Glassie 1966:44-45; and Sloane 1964:25; Weslager 1969:338-339).

The Schwenkfeldens, a German religious sect, developed the V notch in Europe and brought it to America as part of their cultural package. This Silesian sect introduced its use into Pennsylvania in the 1730's. From Pennsylvania this style spread into Appalachia, the Ohio Valley, western Maryland, Virginia, Kentucky, Indiana, Illinois, Missouri, and Texas. For the most part it was spread by people of German heritage (Glassie 1963: 10; Jordan 1978:85; Kniffen 1969:3; and Kniffen and Glassie 1966:54, 59).



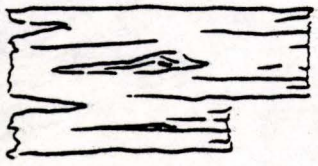
square notch



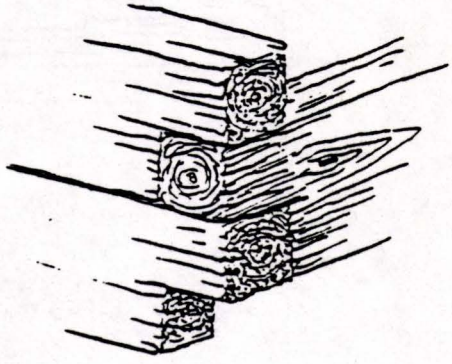
square notch

Square Notch - This notch is an alternative form developed from the V notch and half-dovetail notch. It does not lock because the notch is cut at right angles and requires pegging or spiking to hold. Material is only removed from one side of the notch. It holds water and thus increases rot of the timbers. The advantage of this notch is that it can be quickly made with a saw. This form of notching is often found in planked log construction (Jordan 1978:65, 68; Kniffen 1969:3; Kniffen and Glassie 1966:56; and Weslager 1969:338-339).

The square notch style of corner notching is Northern Bohemian in origin and dominates eastern Virginia and areas later settled by Virginians (Glassie 1963:11; Jordan 1978:65). In the United States, however, this style is associated with people whose origin is English, not Bohemian. It is found in Wisconsin, Alabama, Idaho, and Ohio as well as the inner coastal plain of the South from the Virginia Piedmont to east Texas (Glassie 1963:11; Jordan 1978:65, 68). This style is well known in California and Oregon. The half notch developed from this style and is usually found in the Deep South.

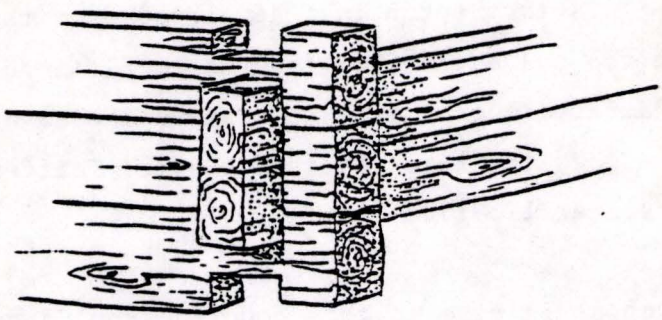


half notch



half notch

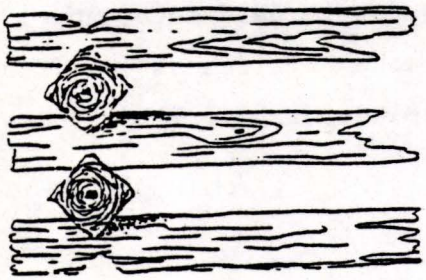
Half Notch - This corner notch is a variant of the square notch and is not self-locking. It is often seen in more recently constructed cabins. The half notch may be used with half logs, and if this is the case, the end of the log may look like a half moon (Kniffen 1969:5; Kniffen and Glassie 1966: 56; and Weslager 1969:339).



double notch

Double Notch - The double notch is similar to the square notch, but differs in that it extends beyond the corner of the structure and thus forms a locking joint. This notch retains water and will rot the logs more rapidly than many other notches. It is a rare notch in the United States, and is best known in Lincoln logs (Bramwell 1976:61; Jordan 1978:71; Kniffen and Glassie 1966:57; and Weslager 1969:339).

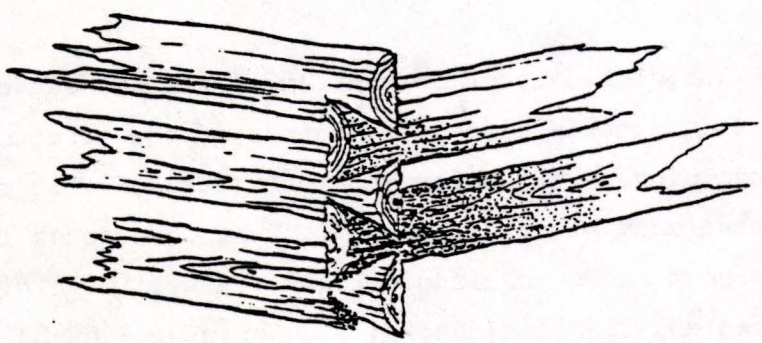
Scandinavians and Finns introduced the double notch into the Upper Great Lakes states in the 19th century. In Europe it is found from the Alps to the eastern European plain as well as in Norway and Russia. This style is also found commonly in northeastern New Mexico, but here it was introduced from Mexico where it had undoubtedly been brought from Spain (Bramwell 1976:61; Glassie 1963:11; Jordan 1978:65, 68, 71; Kniffen 1969:5; Kniffen and Glassie 1966:57; and Weslager 1969:152-153).



diamond notch

Diamond Notch - This is a notch that developed from the V notch. A V is cut on both the top and bottom and tapered to fit into notches above and below. This chamfered cut produces a diamond shaped crown. This notch firmly locks the logs in place (Kniffen 1969:3; Kniffen and Glassie 1966:54; and Weslager 1969:338-339).

The diamond notch style came to this country from Scandinavian and is found only rarely outside North Carolina and Virginia, from the Tidewater to the Piedmont (Glassie 1963:11; Kniffen and Glassie 1966:63).



semilunate notch

Semilunate Notch - This notch is used with half round timbers. It is very similar to a full dovetail joint and could also be called a half saddle notch (Jordan 1978:74).

This is the only notching style that may have been invented in America. It was used early in half log construction in the Deep South and later in east Texas (Jordan 1978:74).

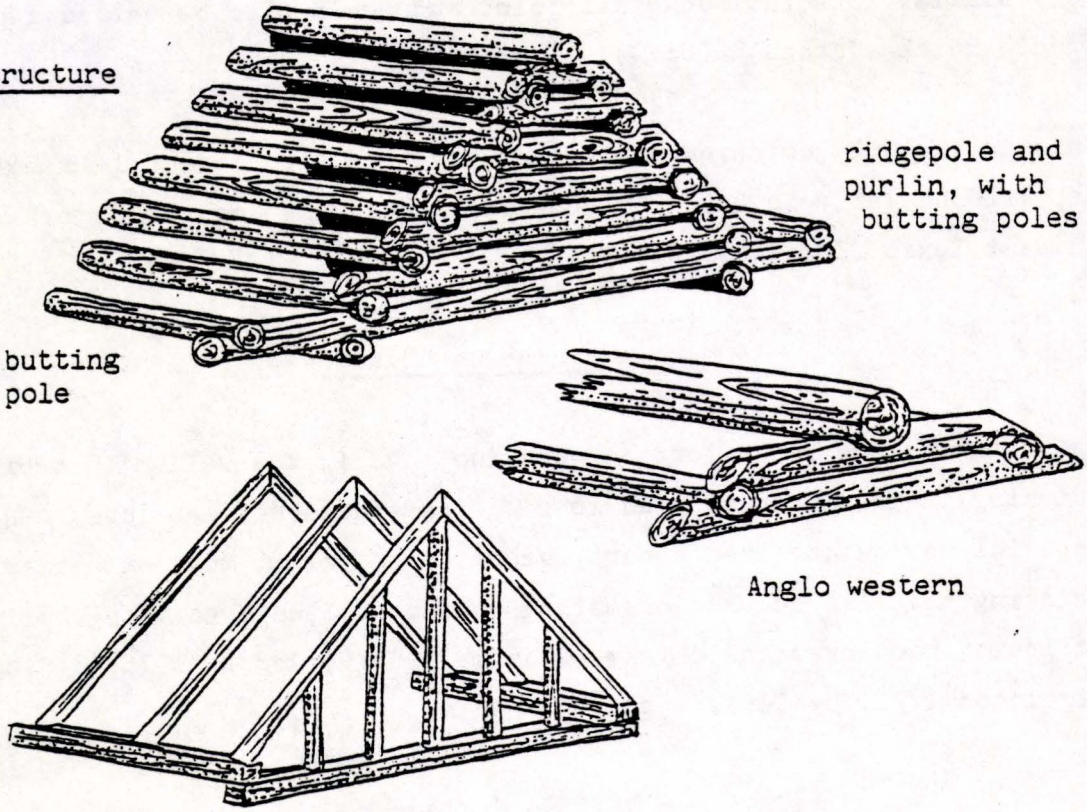
Chinks and Chinking

The chink is the space left between two logs in the wall of a cabin. Chinking is the material used to fill the spaces between logs. Chinking material may be the tree's bark, stone, wood, clay, mud, or mortar. Chinking may also be wooden sealing boards applied by nailing horizontal strips of wood over the chinks (Glassie 1963:9; Jordan 1978:43; and Wigginton 1972:104-106).

Floors

Cabin floors were often packed earth or clay, but in some cases wooden floors were made. Split logs or puncheons were made specifically for this purpose. A puncheon is a short, heavy log split one to three times to form a smooth surface. These logs were then placed on the earth and chinked or pegged, or both, to hold them in place (Connor 1949:114).

Roof Structure



Log cabins usually have two side-facing gables joined by a single uninterrupted roof (Jordan 1978:84). There are four major styles of roof construction. Ridgepole and purlin is the oldest style. It uses a ridgepole that runs the entire length of the roof. The purlins or "rib-poles" are parallel to the ridgepole at regular intervals. Roofs of this type usually have a slope of 25° to 35° (Jordan 1978:84). The ridgepole and rafter roof type uses rafters reaching from the ridgepole to the plate. The angle of this roof style is usually about 45°. The rafter may be lap-jointed onto the plate or mortised to it. Ridgepoles may be hewn or cut and, if necessary, spliced to reach the desired length. The rafters are left round and are called "pole rafters" (Jordan 1978:84; and Wigginton 1972:85-90). The Anglo western roof style is not a true gable roof because it has very little pitch. The unhewn ridgepole rests directly on the top logs of the cabin and rafters extend from it to the plates. Pitch can be as little as 5° (Jordan 1978:84).

Roofs may lack a ridgepole entirely. Construction of this type of roof requires adjacent rafters on opposite slopes of the roof that are lap-jointed or mortised together at the roof ridge. These are secured with a pin to the plate and to each other. These rafters may be hewn, sawed, or poles and they are spaced at about two-foot intervals. Lathing between these rafters at right angles adds additional support. The pitch of a roof of this type may be around 45°. Vertical studs may be employed to add support to the gable end rafters. Clapboards, either horizontal or vertical, enclose the gables (Jordan 1978:87).

Conclusion

The origins of log construction techniques known in the midwest, eastern, and southeastern United States are described here. It will be very useful to know whether ethnic origins for construction techniques were retained by migrants who moved into the western United States. In the case of cabins located on National Forest land, interviews and historic records research may either support or challenge the idea that specific techniques were retained by ethnic groups. It may be true that by the time settlement was taking place here in the West, ethnicity had been filtered out of log cabin construction techniques, and that a true melting pot of cultural ideas was present.

Certain construction techniques may be confined to specific time periods in the west, while others may be represented from the earliest years to the present. Some construction styles may be associated with particular types of settlement in a given area. For example, hewn, dove-tail notched log structures may correlate primarily with a long-term year-round habitation sites, while round-log, square notched structures may reflect the builder's intention of using the site only temporarily or seasonally. Some construction styles may also correlate with certain functions. We might expect, for example, that trapper's line cabins, built to provide shelter to one man for only a few days per year, would be built small and sparingly, exhibiting such characteristics as round logs and Anglo-western roofs. We might expect early miner's cabins (particularly those on unpatented claims) to have been constructed in a similarly frugal manner. Homestead farm houses, on the other hand, would be expected to be larger, to be built with more care, and to have several rooms for family accomodations.

At the present time we know very little about the relationship between various forms of log cabin construction and human lifestyles. Hopefully, some meaningful patterns will emerge as we begin to gather more information about this fundamental aspect of man's technology.

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